

Southern Arizona Coalition for Climate Adaptation and Resilience:
A cluster to drive sustainable agriculture, preserve water resources and develop clean energy

VISION AND OPPORTUNITY: Southern Arizona (SoAZ) will become a national epicenter of climate adaptability by weaving together currently under-coordinated industries and organizations into an impactful, diverse Coalition addressing a growth cluster critical to our arid region--sustainable agriculture, water resources, and clean energy. For this proposal we have amassed support from 11 Coalition members, 9 municipalities, tribal governments, 22 industry partners and countless additional regional assets conclusively demonstrating that now is the time--with EDA support--to leverage momentum, gather joint resources, and make a transformative “moonshot” to propel our regional economy, and environment, in a new direction. Our unique value proposition is in our existing collection of assets, our intentional equity-based framework, and the development of a reproducible model for communities to organize around climate challenges at an international scale.

A major economic driver of SoAZ, agriculture and its associated sectors is facing a climate change-induced threat, with 90% of our state experiencing “exceptional drought” during much of the last two decades. Arizona will face a 20% reduction in Colorado River water by 2022--impacting our agricultural industries first as they account for nearly 70% of all water usage in Arizona. This cluster supports 408,622 jobs and adds \$50 billion dollars to our State, with far reaching industrial impacts in mining, construction, manufacturing, retail, aerospace, waste management, transportation, and tourism. SoAZ agriculture is also nationally essential, providing 90% of winter leafy greens to all of North America. This sector is especially critical to our tribal communities, with almost 20,000 indigenous farmers and ranchers in Arizona comprising about 57% of the agricultural operators. The future success of this cluster in SoAZ demands innovation at an historic pace; we must produce more with less while leaving a smaller environmental footprint. Agriculture and food production need improved data-driven systems, technological innovations, and a “reduce, reuse, recycle” resource mindset to continue to produce sustainable enterprises, equating to enhanced infrastructure, innovations, and the up-skilling of current workers specific to a new economy.

Our region is exceptionally well positioned to address these challenges, as evidenced by the wealth of expertise of our Coalition members, partners and industry leaders, and their overwhelming desire to come together to support the growth of this cluster. SoAZ has the longest continuous agricultural community in North America with a historical record spanning 4,000 years. Food production is deeply embedded in our culture as evidenced by UNESCO Gastronomy and National Heritage Area designations, recognizing the uniqueness of our region’s intersection of watershed ecology and food systems. We are home to numerous leaders in agricultural production and continue to see a growing number of new sustainable agriculture and clean energy companies emerging, attracted by the innovative research being completed in our top public research institution, the University of Arizona, and the infrastructure of our rural communities, especially Yuma. Our Coalition members all share a common goal for SoAZ and aim to leverage the support of the BBB Regional Challenge to strategically channel existing momentum into a dynamic, equitable, and transformational cluster that catalyzes the SoAZ economy and equips a workforce capable of meeting the challenges presented by a changing climate and the disruptions of the 4th Industrial Revolution.

Our proposal focuses on five components within our cluster designed to solve regional challenges with the potential to generate thousands of jobs, increase wages of thousands more, reduce unemployment in vulnerable communities, and create and attract high-growth industries that come with billions in capital and auxiliary benefits. The results will position SoAZ to be the global leader in solving these challenges as a living-lab for climate adaptation and resilience while improving the quality of life for our region's most vulnerable populations.

COALITION STRUCTURE AND COMPONENTS:

Structure: Our Coalition's proposal is unique in its influence from a groundswell of industry and academia and its focus on community-based solutions with the intentional inclusion of organizations that represent and work with our region's most vulnerable populations. In order to allow time for: 1) the onboarding of additional diverse partners to our representative committee structure and submission of additional programs from partner groups; and 2) the evaluation of all programs against our included equity plan to assess their ability to serve our entire community, create economic impact, and live up to the cluster goals of climate resiliency. As such, specific sub-programs will be finalized within the five components during Phase 1. Our framework will enable variously scaled projects, right-size allocated funds, and accommodate the scope to ensure that communities of all size and demographics are able to benefit from the support. Expected regional outcomes include: a) new business starts, (b) increase in company revenue, c) job creation, d) wage growth, e) reduced unemployment, f) total capital attracted/leveraged (e.g., angel, VC, loans, grants), g) patents & IP secured, h) total populations served, i) diversity of populations served j) impact on GDP growth. Coalition members will also use their cluster-based subject matter expertise to develop a standardized set of secondary measures to evaluate impact on climate adaptability, including a lens of cultural competency.

Coalition Members, Regional Assets and Industry Leadership: The lead entity for the Coalition, 1) the City of Tucson (CoT), is well positioned to serve as the hub for resource coordination. In 2020, CoT adopted goals to become carbon neutral by 2030 and achieve zero waste by 2050. CoT has focused its COVID-19 recovery on supporting entrepreneurship, small business, and job recovery and is leading efforts on climate responsiveness. CoT's mayor, Regina Romero, is an advocate for climate justice, nationally recognized for her effort. CoT will house the Regional Economic Competitiveness Officer (RECO) and is uniquely positioned to co-lead the infrastructure component by supporting capital investment projects. Future Comprehensive Economic Development Strategy (CEDS) plans will include objectives that come from the Phase 1 to be supported beyond the lifecycle of this grant.

All Coalition members have been nationally recognized for their focus on equity and inclusion. Additional Coalition members include partners that are leading the way in SoAZ in the cluster's focus areas: 2) Greater Yuma Economic Development Corp, an EDO serving a population of over 1.5 million people in the southern region of Arizona; 3) the University of Arizona (UA), Arizona's flagship land grant university with research expenditures of almost \$800M and deep subject matter expertise in food, agricultural, and water sectors, as well as unique, relevant infrastructure assets such as Biosphere 2, Arizona Institutes for Resilience, the Controlled Environment Agriculture Center, and the Yuma Center of Excellence for Desert Agriculture; 4) Pima Community College and 5) Arizona Western College, serving students and employers offering associate degrees, occupational certificates and transfer degrees throughout Arizona; 6)

Startup Tucson, a non-profit working to support entrepreneurship by increasing the quantity, quality, and diversity of businesses in SoAZ and the recipient of various other EDA, USDA, and SBA grants to support its work with food entrepreneurs and scaling ventures; 7) Campus Research Corp that includes the UA Center for Innovation and Tech Parks Arizona; 8) the Community Investment Corporation, a non-profit committed to ensuring that individuals can access the funding they need to start, sustain, and grow their ventures; and the Coalition's equity plan members: 9) the Community Food Bank of SoAZ, 10) Santa Cruz Valley Heritage Alliance and 11) Yuma Crossing National Heritage Area. These Coalition members will be joined by additional regional supporters and partners such as Cochise County, the Pascua Yaqui Tribe and the Environmental Defense Fund, as well as industry leaders including Western Grower's Association and Bayer Crop Sciences, to support the Coalition's committee structure and aid in the development and selection of projects for inclusion in Phase 2. A full list of supporters is included in our appendices.

Below we have identified high-level component areas and each component lead. While specific project proposals will be selected by our component committees as a part of Phase 1 using our established rubric and equity plan for evaluation, the Coalition has identified five major component goals and included one sample program per goal. These programs may or may not be selected in the final submission but are representative of the types of programs ripe for development in SoAZ. For each of the below component areas, the Coalition already has numerous programs to choose from but by allowing for more time for additional submissions and structuring the selection process using our evaluation framework, we are working to ensure equity and longevity, particularly as it relates to the true representation of rural and tribal partners who have experienced a long history of being side-lined in major economic development and environmental decisions.

COMPONENT 1: Research Innovation and Translational Technology: *Led by the University of Arizona.* Climate adaptability in our region demands the development of new technologies and research innovations that can be translated into practice and new business starts. The programs in this component will focus on the development and commercialization of innovations from within the University and their applied transfer to not just industry but also community partners. The component will collaborate with the University's innovation partners and focus on creating an enabling framework to support entrepreneurially-minded faculty and students. *Example Program: Current UA and Environmental Defense Fund research supporting crop-shifting from water-intensive crops such as alfalfa to guayule, a drought tolerant plant that produces natural rubber. This program includes workforce collaborations with multiple tribes and corporations, and has the potential to generate spin-off startups through the commercialization of rubber.*

COMPONENT 2: Workforce Resilience: *Co-Led by Pima Community College and Arizona Western College.* Automation is shifting the nature of agricultural jobs from low-skill labor to human-robot interactions. Innovations, such as modern vertical farming, add further disruptions. Rural communities will require workforce development to upskill existing labor pools and build a diversified workforce. With direct input from the many existing employers and regional partners of the component leads, programs in this component will support adaptive industry with an emphasis on building new career pathways for future workers, especially from rural and underserved populations. *Example Program: Modeled after PCC's autonomous vehicle*

workforce partnership with TuSimple, the program partners with AgTech industrial leaders to co-create technical curriculum that fills emerging workforce gaps, creating a reskilling and upskilling pathway with real-world experience and apprenticeship and pathways into the UA College of Agriculture and Life Sciences Career Center.

COMPONENT 3: High-growth Startups & Entrepreneurship - *Led by Startup Tucson.* As innovative ideas emerge, our startup ecosystem supports founders to help scale them into job-creation engines. The region has produced a number of exciting AgTech, food, and climate-adaptive technologies and startups including CropTrak, Wholesum Farms and Tucson Tamale. This component will focus on amplifying the role of small businesses as well as high-growth startups by promoting a pipeline of early-, mid- and growth-stage programming and resources to fill gaps within our cluster. Special emphasis will be given to support rural and tribal communities and underserved populations with accessible and multi-lingual services. *Example Program: A sustainable ag prototyping facility pairing science and tech incubation, gastronomy, community education, and tourism. Novel, high-tech approaches will be applied to best-practices in circular economy, food-localism, zero-waste, low-water innovations, highlighting both our region's cultural food heritage and emerging technologies. Sites like this can be duplicated near YCEDA, Tech Parks, and Tucson Gastronomy Collective.*

COMPONENT 4: Sustainable Infrastructure - *Co-Led by CoT and Greater Yuma.* Strategic infrastructure investments must be used to support technologies and companies developed within the cluster and lay the groundwork for attracting new industry partners with a direct interest in Coalition goals. Programs under this component will focus on the expansion of infrastructure projects that promote the sustainable use of limited resources and the enablement of new climate adaptive technologies through regional governmental and economic development partners. *Example Programs: 1) Transforming the CoT's landfill site into the Los Reales Sustainability Campus providing integrated and cutting-edge bio waste and resource management and generate green-collar jobs; 2) Implementation of wireless broadband services and fiber infrastructure across rural SoAZ production acreage to enable AgTech Internet of Things (IoT).*

COMPONENT 5: Seed Funding - *Led by Community Investment Corporation.* Seed funding is essential to ensure robust support of promising technology, emerging businesses and diverse entrepreneurs. Programs under this component will focus on creating multiple on-ramps for gap-funding from prototype to scale in the cluster's focus areas. This component will be led by CIC, an experienced loan fund administrator that underwrites, originates, and services a portfolio of roughly \$3.5 million. CIC has also increased access to capital for BIPOC and women through alternate forms of seed funding and business financing including the region's only 0% BIPOC Community Managed Loan fund. Programs under this component will include the formation of a Revolving Loan Fund and a Venture Fund and will leverage the region's recent EDA Build to Scale Capital Challenge Grant. The Fund will have an independent Investment Committee made up of industry, risk capital, and business experts, and will be advised by the RECO.

CLUSTER FEASIBILITY:

Complementary and Future Investments: The Coalition has already secured a large number of initial commitments from partners and will continue to build momentum in securing complementary resources for cluster growth as well as cost share. Infrastructure partners for this

proposal have already committed to fund portions of the programs that are being considered for inclusion in Phase 2 including the CoT's 1,100-acre Los Reales Sustainability Campus that could result in more than \$200M in capital investment. Private industry and the region's philanthropic foundations regularly contribute to support innovative community-wide efforts like this, especially those with strong equity plans. It is anticipated that matching funds will also come from the creation of two separate seed investment funds--a revolving loan fund and a venture capital fund. Per PitchBook, 2021 is on track to see \$600B in AgTech VC alone, more than ten times that of a decade ago meaning the timing to create an idea-to-exit funding pipeline is ideal. Additionally, the Coalition is confident in its included sustainability plan that will ensure the feasibility of the growth cluster beyond Phase 1 and 2.

Barriers to Implementation and Mitigation Strategies: The largest barrier faced for successful implementation of the Coalition's vision is a lack of collaboration. In the past, a major barrier to implementation for this cluster concept has been the under-coordination and disparate activities of the various regional leaders, organizations and industry partners. A perceived scarcity of resources has often undermined true collaboration and therefore transformational innovation. Rural, tribal, and underserved communities have been relatively absent from regional conversations due to the effort required for relationship development and the persistent perspective that the projects in their communities do not create the same returns on investment and job creation as metropolitan areas. The Coalition has a new opportunity to overcome some of these thanks to the BBB Challenge's focus on creating stronger urban-rural linkages, addressing economic distress, and ensuring equity. The Coalition was intentionally formed by bringing in partners that represent a multitude of SoAZ stakeholders and new intersections within the cluster. Many of the Coalition members collaborate on projects outside of the cluster and are well positioned to continue working together, helping to extend trust beyond themselves to other members. The equity plan and evaluation framework, in addition to the onboarding of a RECO, will ensure fair and transparent decision-making that emphasizes equity and inclusion. The Coalition's equity partners are all organizations that work with historically underserved populations and counties like Cochise and Yuma that house primarily rural and agricultural communities. Additionally, existing relationships with Tribal communities will be expanded through additional outreach during Phase 1 in preparation for these communities to be included in Phase 2 (see the Equity Plan).

Implementation Timeline: Upon receiving Phase 1, in month 1, committee formation will be finalized for the five components and committees will meet to finalize RFPs and evaluation. The Coalition will onboard the RECO and open internal RFPs. In month 2, the Coalition will host a Planning Conference including additional regional outreach. In month 3, the Coalition committees will review all RFPs and submit their recommendations to the RECO. An Independent Advisory Committee will review these proposals based on the evaluation framework with an Equity Task Force, selecting programs for inclusion in Phase 2. In month 4, each committee will prepare their final proposals, securing commitments and working with the RECO to set budgets and establish goals and metrics for submission to the Phase 2 deadline. This timeline anticipates a December start date and due date of March. Component leads will continue to host committee meetings after Phase 2 submission and feasibility and planning studies may continue past March 2022.